

REMARKS

The Office Action of October 6, 2004, is discussed in detail below.

Drawing Objections

Applicant has amended Fig. 1 to include an energy source and energy pulses as requested by the Examiner in Paragraph 1 of the Office Action.

Applicant has included a new Fig. 3 that schematically depicts the features of Claim 26.

Applicant has added no new matter to the drawings.

Applicant believes that amended Fig. 1 and new Fig. 3 adequately address the Examiner's objections to the drawings and respectfully requests that these objections be removed.

Amendments to the Specification

Applicant has provided an amended title of the invention and believes that the amended title adequately addresses the Examiner's concern expressed in Paragraph 3 of the Office Action.

Applicant has corrected minor errors on pages 3, 5, 14, and 15 of the specification, including those indicated in Paragraph 2 of the Office Action.

Applicant has inserted a new paragraph on page 6 of the specification to provide a brief description of new Fig. 3.

Applicant has included additional text in the specification on page 14 to refer to the energy source 8 and energy pulses 6 included in amended Fig. 1.

Applicant has included additional text on page 30 to characterize new Fig. 3.

Applicant has added no new matter to the specification.

AMENDMENTS TO THE DRAWINGS

Amendments to Figure 1

Figure 1 has been amended to include an energy source 8 and energy pulses 6. The description of Figure 1 in the specification has been amended accordingly to reflect the inclusion of energy source 8 and energy pulses 6.

Addition of Figure 3

Applicant has added a new Figure 3 that schematically illustrates an embodiment in accordance with Claim 26 and the supporting description thereof in the specification. The numerals included in Figure 3 have been included in the specification.

Claim Amendments

Original claims 1 – 25 have been cancelled.

Claim Objections

From Paragraph 4 of Office Action

Claims 13 – 20 are objected to because of the following informalities:

Claim 13, line 1; “recording an” should be –recording information to an -- Claims 14 – 20 are dependent upon claim 13.

Applicant has cancelled claims 13 – 20.

Claim Rejections – 35 USC 102(b)

From Paragraph 6 of Office Action

Claims 1-3, 6, 12, 13, 18 & 19 are rejected under 35 USC 102(b) as being anticipated by Imaino et al. (hereafter Imaino) (US 5,555,537).

Applicant has canceled original claims 1-3, 6, 12, 13, 18, & 19.

From Paragraph 7 of Office Action

Claims 13 & 20 are rejected under 35 USC 102(b) as being anticipated by Udagawa et al. (hereafter Udagawa) (US 5,513,167).

Applicant has canceled original claims 13 & 20.

From Paragraph 8 of Office Action

Claims 26, 27, 31-34 & 38-42 are rejected under 35 USC 102(e) as anticipated by O'Neill et al. (hereafter O'Neill) (US 6,775,218).

O'Neill teaches application of energy having a spatial profile to a phase change material (column 6, lines 31-33). The energy applied by O'Neill includes a central intense beam portion and a less intense annular portion surrounding the central beam portion (column 6, lines 40-44 and column 7, lines 1-3). The spatial profile defines a region of spatial overlap (figure 3A, element 302) with the phase change material. (Applicant notes that the region of spatial overlap is represented by element 302 of fig. 3A, not element 301 as indicated in the Office Action.) The energy applied by O'Neill heats the phase change material to produce a distribution of temperatures within the region of spatial overlap 302, where the portion heated by the central portion of the energy tends to melt the phase change material (column 7, lines 3-4). Upon cooling of the melted material, an amorphous mark (Fig. 3A, element 301) forms.

Applicant recognizes that O'Neill teaches the formation of an amorphous mark by applying energy, melting and cooling of a phase change material. Applicant maintains, however, that O'Neill fails to teach each and every element of claim 26. Specifically, Applicant maintains that O'Neill fails to teach the formation of a mark that coincides with those portions of the spatial distribution of energy having a temperature sufficient to form an amorphous phase.

The amorphous mark 301 presented in Fig. 3A of O'Neill corresponds to the state of the phase change material after it has cooled and the boundaries of amorphous mark 301 correspond to the boundaries in the cooled state. O'Neill fails to teach the relationship

between the boundaries of the amorphous mark 301 in the cooled state and the boundaries of the melted portion of the phase change material in the heated state.

The melted portion of the phase change material of O'Neill is that portion of the phase change material over which temperatures sufficient to permit formation of an amorphous phase exist. O'Neill indicates that when the melted material cools, an amorphous region forms (column 7, lines 5-7), but fails to teach that the boundaries of the initially melted region coincide with the boundaries of the mark 301 formed upon cooling.

In contrast, Applicant's specification teaches and claim 26 recites that mark formation in Applicant's invention coincides with those portions of the spatial distribution of temperatures sufficient to form an amorphous phase. (See, for example, p. 19, lines 10-12 of Applicant's specification: "If only selected points within the region of spatial overlap are heated to a temperature sufficient to form an amorphous phase, the mark will coincide with only those points"). The boundaries of Applicant's spatial region over which temperatures sufficient to form an amorphous phase exist in the heated state (Fig. 3, element 260) and the boundaries of Applicant's mark formed upon cooling (Fig. 3, element 280) coincide.

Element 260 of Fig. 3 of Applicant's invention corresponds to the melted portion of O'Neill's phase change material and Element 280 of Fig. 3 of Applicant's invention corresponds to O'Neill's mark (Element 301 of Fig. 3A of O'Neill). Whereas Applicant teaches a coinciding of the boundaries of Applicant's melted portion (Element 260 of Fig. 3 of Applicant's specification) and Applicant's mark (Element 280 of Fig. 3 of Applicant's specification), O'Neill fails to teach a relationship between the boundaries of its melted portion (not depicted in Fig. 3A of O'Neill) and its mark (Element 301 of Fig. 3A of O'Neill).

Applicant maintains that O'Neill fails to teach each and every element of Applicant's claim 26 and that the rejection of claim 26, along with the rejection of claims 27, 31-34 & 38-42 that depend from claim 26, has been overcome. Applicant respectfully requests that this rejection be removed.

Claim Rejections – 35 USC 103(a)

From Paragraph 10 of Office Action

Claims 4 & 5 are rejected under 35 USC 103(a) as being unpatentable over Imaino in view of Toda et al. (hereafter Toda) (US 5,642,343).

Applicant has canceled original claims 4 & 5.

From Paragraph 11 of Office Action

Claims 7, 8, 11, 21, 22 & 25 are rejected under 35 USC 103(a) as being unpatentable over Imaino in view of Kudo et al. (hereafter Kudo) (US 5,148,335).

Applicant has canceled original claims 7, 8, 11, 21, 22 & 25.

From Paragraph 16 of Office Action

Claims 28-30 are rejected under 35 USC 103(a) as being unpatentable over O'Neill in view of Udagawa.

As described hereinabove in response to the rejection over O'Neill presented in Paragraph 8 of the Office Action, Applicant believes that O'Neill fails to teach each and

every element of Applicant's claim 26. The combination of O'Neill and Udagawa therefore fails to teach each and every element of claims 28-30.

Applicant believes that the rejection of claims 28-30 over O'Neill in view of Udagawa has been overcome and respectfully requests that this rejection be removed.

From Paragraph 17 of Office Action

Claims 35 & 36 are rejected under 35 USC 103(a) as being unpatentable over O'Neill in view of Ovshinsky (US 3,530,441).

As described hereinabove in response to the rejection over O'Neill presented in Paragraph 8 of the Office Action, Applicant believes that O'Neill fails to teach each and every element of Applicant's claim 26. The combination of O'Neill and Ovshinsky therefore fails to teach each and every element of claims 35 & 36.

Applicant believes that the rejection of claims 35 & 36 over O'Neill in view of Ovshinsky has been overcome and respectfully requests that this rejection be removed.

From Paragraph 18 of Office Action

Claim 37 is rejected under 35 USC 103(a) as being unpatentable over O'Neill in view of McDonald et al. (US 6,563,779).

As described hereinabove in response to the rejection over O'Neill presented in Paragraph 8 of the Office Action, Applicant believes that O'Neill fails to teach each and every element of Applicant's claim 26. The combination of O'Neill and McDonald therefore fails to teach each and every element of claim 37.

Applicant believes that the rejection of claims 37 over O'Neill in view of McDonald has been overcome and respectfully requests that this rejection be removed.

SUMMARY

In view of the above amendment, the outstanding claims in the application are claims 26 – 42. In view of the above amendment and accompanying remarks, applicant believes that all outstanding claims are allowable over the reference cited by the Examiner.

Applicant respectfully requests withdrawal of the outstanding rejections and believes that the application is in a condition for allowance. If the Examiner has questions or suggestions regarding this amendment or the application, he is respectfully asked to contact applicant's representative at the telephone number or email address listed below.

Respectfully submitted,



Kevin L. Bray

Reg. No. 47,439

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Energy Conversion Devices

2956 Waterview Drive

Rochester Hills, MI 48309

Phone: (248) 299 – 6054

Fax: (248) 844-2273

Email: kbray@ovonic.com